Delco Propulsion Systems

MRI

Advanced Hybrid Electric Vehicle Technology

Kaushik Rajashekara
Delco Propulsion Systems
P.O. Box 502650
Indianapolis, IN 46250

Abstract

Delco Propulsion Systems (DPS) has been working on several projects related to the Chrysler Corporation's Hybrid Electric Vehicle programs. DPS has proposed to supply the drive unit, the power electronics systems, and the APU generator system.

In the Generation 1 part of the DOE hybrid program, DPS is working on high efficiency induction motor drive system fed from a IGBT based inverter. A Digital Signal Processor based field orientation controller will be used to control the motor. For the series hybrid vehicle program, DPS is proposing to supply a generator system, consisting of vector controlled induction generator and the IGBT based converter.

In Generation 2 of the project, DPS has proposed to investigate various motor, power converter, and controller technologies which are likely to be incorporated in the future electric and hybrid vehicle propulsion systems. Permanent Magnet, Switched Reluctance, and Synchronous Reluctance Motor Technologies will be investigated. Use of newer power devices such as NPT IGBTs, MCT, etc. will be studied to obtain the highest possible efficiency. New control strategies will be studied to obtain optimum performance of the complete propulsion system.